

The State of University-Business Cooperation in Spain

Part of the DG Education and Culture
Study on the Cooperation Between
Higher Education Institutions and
Public and Private Organisations in Europe

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supported by the



Abbreviations

EC	European Commission
HEI	Higher Education Institution
LLL	Lifelong Learning
R&D	Research and development
SME	Small- and medium-sized company
S2BMRC	Science-to-Business Marketing Research Centre
TTO	Technology Transfer Office
UB	University-Business
UBC	University-Business Cooperation

UBC Country Reports: logic and characteristics

The UBC country reports compare the continental results of the major *State of European UBC* study (Davey et al., 2011), with the results obtained in a specific country. The reports are designed to be complementary to the major study and highlight the diversity amongst European countries. Additionally, by offering more concrete results at national level, it is believed, the country specific report provides more appropriate decision-making material for most stakeholders, whose jurisdiction is restricted to the regional or country level.

The reports present mostly descriptive data and are not intended to be a comprehensive or detailed study of each of the countries or a ranking among EU countries. Instead, the reports are provided to all stakeholders simultaneously (academics, HEI managers, policy makers at different levels, business, etc.) and unlike the European report, are expected to provide some opportunity for individual stakeholder interpretation and resulting actions, according to their local understanding and different roles within the UBC ecosystem.

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Science-to-Business Marketing Research Centre



Authors: Victoria Galan-Muros, Todd Davey, Xavier Testar Ymbert, Arno Meerman and Alejandro Sánchez Contreras

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For more about the University-Business Cooperation reports please contact Todd Davey (davey@apprimo.com) and Victoria Galan-Muros (galanmuros@fh-muenster.de)

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Executive summary

A tale of two worlds

The results of this study reflect a deep divide in the perceptions of higher education institution (HEI) managers and academics in the Spain, in respect to cooperation between HEIs and business (from here termed University-Business Cooperation or UBC). Spanish HEI managers perceive themselves to be European leaders in UBC with highly developed *supporting mechanisms* in place to support it. Contrary, Spanish academics perceive that there is a substantially lower level of UBC development and few UBC *strategies* in place, especially few implementation strategies. The difference between the two about the extent of UBC implementation strategies is the largest difference recorded between HEI managers and academics Europe-wide. One of the only areas where they agree is in respect to the *barriers* and *drivers*, where both identify a negative environment for UBC (more *barriers* than *drivers*). Considering the current financial situation of Spain, it is unsurprising that financial barriers were considered to be a major obstacle, along with bureaucracy.

The fact is that, within Spanish HEIs the flow of information (whether it is top-down or bottom-up) is difficult, what encourages two different views. They might have such different views of the reality for one of these three options: (i) the academics know how much cooperation is being undertaken and the HEI managers are miss-informed and over-optimistic, (ii) the HEI managers have a good overview of all UBC activities in the HEI and the academics are miss-informed and pessimistic or (iii) a combination of the options above. Whichever it is, if Spanish perceive that they are the forerunner of European UBC, then not much effort will be dedicated to this topic. However, in Spain there are currently constant debates in HEIs about how to improve UBC because even when there are substantial differences among regions and HEIs, there is a general awareness of the need of improvement. Therefore, the divide between academics and HEI managers needs to be bridged in order to take Spanish UBC forward

About the study

The results presented in this report were from a study commissioned by the European Commission (EC). Surveys were sent out to all registered European HEIs in 33 countries in 2011. In total, 6,280 responses were received from European academics and HEI management (HEI managers and HEI professionals working with industry) whilst from Spain, 596 responses from academics (471) and HEI management (125) were received. The study measured the perceptions of these two groups in respect to their

own cooperation efforts and those of their university respectively.

Spain has a Collaboration in R&D focus, the question is: are they above or below average?

The most developed type on UBC in Spain is *R&D* (mainly contract research). The reason for this can be that from 1989 on, TTOs started to be created in all Spanish HEIs, being their main duty the improvement of joint R+D, supported by public funds, either to cover part of their structural/operative expenses or specific UBC projects directly. Until 2008, joint R&D was constantly increasing, but from 2008 to 2011 and due to the financial crisis contract research has decreased 25%.

R&D is followed by (2) *mobility of students*, and (3) *lifelong learning*, while the least developed type is *mobility of academics*. HEI managers perceive all eight types of collaboration are at least moderately developed. This contrasts with the assessment of Spanish academics, who perceive to be in the bottom third of European countries, assessing all types of collaboration to be below the European average, specifically rating Spanish *academic mobility* to be one of the three lowest in Europe.

Barriers to UBC are higher in Spain, especially funding barriers

The primary *barrier* to UBC in Spain are: (1) 'the current financial situation', (2) 'the limited absorption capacity of SMEs to take on internships or projects' and (3) 'lack of financial resources of the business', which positions financing UBC as a very challenging task in Spain. Understandably, 'the current financial crises' was rated as the biggest barrier to UBC, to a much greater extent than their European counterparts. The current financial position of Spain, which is immersed in a severe economic and financial crisis since five year ago, is affecting both public and private finances.

When UBC public funding programmes have been put in place, UBC has considerably grown. Two of the most important UBC programmes are CENIT and INNPACTO, that counting with high budgets funded 50% of the costs of collaborative research for three or four years. These programmes contrasted with the low importance given to basic research with less programmes and much lower budget per programme.

Unfortunately, these types of programmes have not been very common in the last few years. However, it has just been published (December 2013) the call "Retos de Colaboración" (Collaboration Challenges)

by the Ministry of Economy and Competitiveness (MINECO), in order to fund joint R&D projects, showing the importance given to UBC and its future development.

Also, the limited absorption of the SMEs could be due to the fact that most SMEs are micro-companies with less than 10 workers. The percentage is much higher than in the rest of the EU, which makes the innovation processes difficult, especially when they are based on R&D. The fact that the vast majority of Spanish firms are SMEs and many in traditional sectors could justify the fact that their lack of absorption capacity is perceived to be a major barrier. Additionally, high importance is given to relational barriers, or difference in culture between HEIs and businesses, considerably higher than in the other European countries.

Relationships drive cooperation in Spain

Spanish HEI management and academics alike name relationship drivers as the main *drivers* of UBC. Similarly to Europe, relationship drivers such as (1) 'existence of mutual trust', (2) 'existence of mutual commitment' and (4) 'having a shared goal' were nominated as the highest drivers of UBC, together with the business driver (3) 'employment by business of university staff and students'. This suggests that greater effort to bring academics together with business, with focus on relationship-building, should be made for further improvement of cooperation. However, generally both Spanish academics and HEI management perceive a slightly lower level of drivers for UBC than their European counterparts.

When comparing barriers against drivers, both HEI managers and academics perceive Spain to be one of the most negative environments for UBC in Europe.

Academics perceive lesser personal benefits from UBC

Spanish academics perceive the primary winners from UBC to be: (1) students, (2) business and (3) HEIs (these three groups are over the European average) and lastly (4) personal benefits. The results are characterised by a much lower rating by academics for personal benefits from UBC, rating far below the European average that UBC activities 'increase their chances of promotion' and their 'standing within the university'. Spanish legislation is somehow "generous" with Spanish researchers in term of financial benefits from contract research and licenses; however, for the rest of the UBC types in which no revenues are involved, no other benefits exist for academics. These results imply that Spanish academics need to receive greater personal benefits from their HEI in terms of chances of promotion in order to increase UBC activity.

The new law of Science Technology and Innovation (2011) created at the same time that this study took place; not only recognised and institutionalised the third mission of the HEIs, but also introduced "collaboration in transfer activities" like one of the responsibilities for academics, together with research and teaching. However, in the reality, promotion is largely based only on research (quality publications). Even when some kind of academic promotion based on technology transfer activities exist, it is very difficult to achieve unless UBC is based on IP.

Conversely, HEI management state that (1) HEIs receive most benefits from UBC, followed by (2) business and society are the main winners from UBC (considerably higher than the EU average) whilst (3) students get a lower perceived benefit (slightly below the EU average).

Supporting mechanisms are moderately developed in Spain

UBC *strategies* have been rated by HEI managers as the most developed in Europe, with documented strategies such as (1) 'a top-level management committed to UBC' and (2) 'a strategy for UBC' more developed than implementation strategies such as incentives for academics. Critical to consider, however is that Spanish academics rate UBC strategies in Spain to be one of the lowest developed in Europe, especially implementation strategies, (both rated as the fourth lowest in Europe). This is an alarming disconnect which suggests there is a deep perceptual divide between the two groups.

HEI managers perceive that 'Internal/external agencies dedicated to UBC' are more developed in Spain than 'role-based approaches in UBC', and also compared to the European average. The highest developed UBC *structures* are 'incubators for the development of new business' and 'the presence of business on the university board', both above the EU average. However, 'alumni network', 'the practice of recruiting industry professionals into the knowledge transfer area' and 'the presence of academics on company boards' are substantially less developed in Spain than in their European counterparts.

Spanish HEI managers also assess that all UBC *activities* are more developed than the European average, especially in internally focused education and workshops focused on students. However, Spanish UBC is still moderately developed and therefore there is much room for improvement, especially in 'entrepreneurship education offered to academics' and 'the featuring of UBC prominently on the university's website'.

Introduction

Background

With the creation of the Europe 2020 programme, the European Union's (EU) growth strategy for the coming decade, and the higher education modernisation agenda, Europe is embracing the need to create a more connected and closer relationship among government, business and HEI in order to increase employment, productivity and social cohesion¹. If fostering UBC is understood as 'interactions' between HEIs and businesses for mutual benefit, then fostering UBC and extracting its value can help society face a number of issues. UBC helps universities to face the problem of decreasing public funds², helps businesses to gain and maintain their competitive advantage in today's dynamic international markets, contributes to the economic development on regional and national level³ as well as meet the demands of the labour market to provide more relevant knowledge and skills and greater job prospects of students⁴. Additionally, there are substantial indirect outcomes of UBC including support in the creation of a knowledge economy⁵, support for local business⁶, creation of jobs⁷, stimulation of economic growth and increased living standards whilst reducing hindrances to good living⁸. In this context, UBC creates mutual benefit for all parties involved, and wider, to society.

Over the last few decades there has been a dramatic shift in the focus of HEIs and policy makers towards the HEI's so-called 'third mission'. Through this, HEIs have had their roles focussed to a greater extent on the need to contribute to society in a more meaningful way through knowledge and technology creation, transfer and exchange⁹. In recent years, the focus has been extended to recognise all the ways in which HEIs can contribute to society including *LLL*, *entrepreneurship* or exchanges of workers with businesses as means to reach the third mission. Owing to this, the holistic extraction of value via UBC has become more important for the viability and relevance of HEIs as the benefits of closer and better cooperation between HEIs and businesses and the *benefits* for the students have been increasingly recognised.

¹ European Commission 2011

² Carayol, 2003

³ OECD, 2002

⁴ Bozeman and Boardman 2013

⁵ Etzkowitz & Leydesdorff 2000

⁶ Davey et al. 2011

⁷ *ibid*

⁸ Etzkowitz & Leydesdorff, 2000

⁹ *ibid*

Objective

The objective of this report is to evaluate the current status of UBC in Spain and benchmark these outcomes against European HEIs. As a result of this analysis, the reader will have a clearer understanding of the extent of cooperation with business. Furthermore, the report aims to highlight the *Barriers* and *Drivers* preventing or motivating cooperation as well as the extent of development of mechanisms supporting UBC, in comparison with the European average.

Methodology

The survey

The survey was created during a project completed with the EC in a fifteen and a half month study on the cooperation between HEIs and public and private organisations in Europe. The main components of the project were in-depth qualitative interviews with 10 recognised industry experts as well as a major quantitative survey. The survey was translated into 22 languages and sent to all registered European HEIs (numbering over 3,000) in 33 countries during March 2011. Through this, a final sample population of 6,280 academics and HEI management was achieved making the study the largest study into cooperation between HEIs and business yet completed in Europe.

Questions were posed to two groups within HEIs. These groups were asked about their perception of UBC:

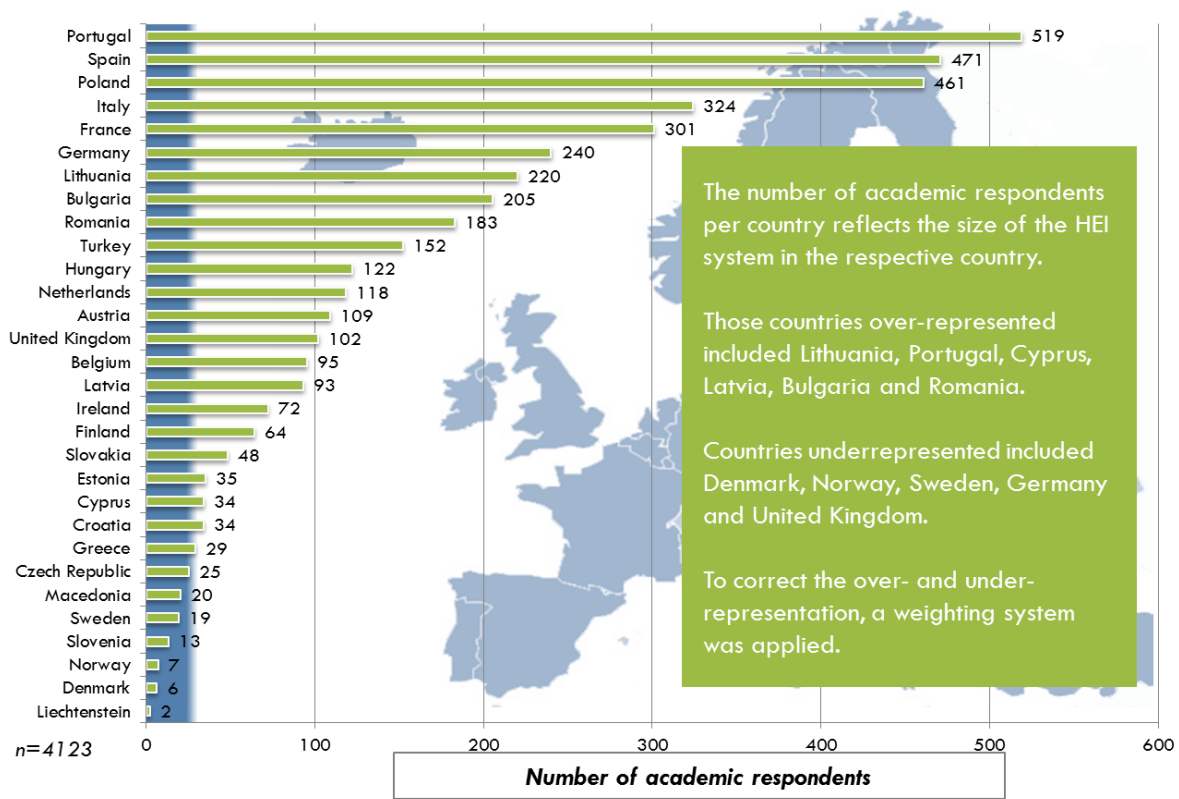
1. **Individual academics** were asked to respond on behalf of themselves.
2. **HEI management** (HEI managers and university professionals working with industry) were asked to respond on behalf of their HEI.

	Focus	Responded on behalf of	Colour code for results
1	Academics	Indv. academics	Green
2	HEIs	HEI management and university professionals working with industry	Orange

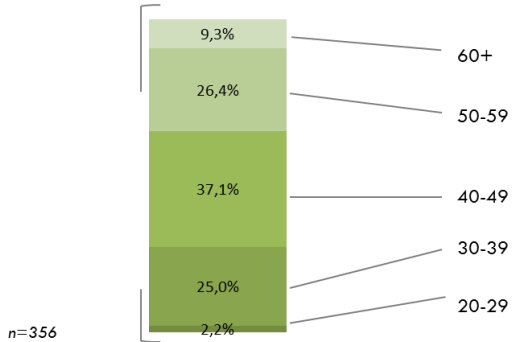
Colour codes have been used throughout the report to identify those results received from the academic (green) and those results received from the HEI (orange).

Respondents (academic)

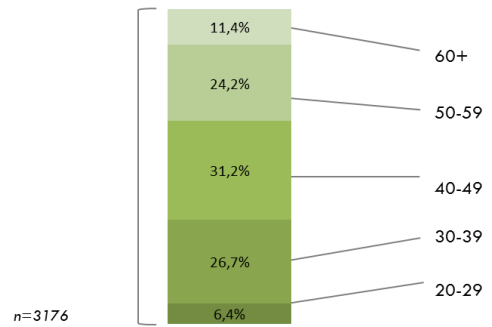
Country



Age of respondents in Spain



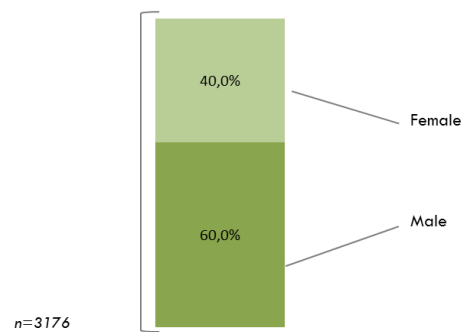
Age of respondents in Europe



Gender of respondents in Spain

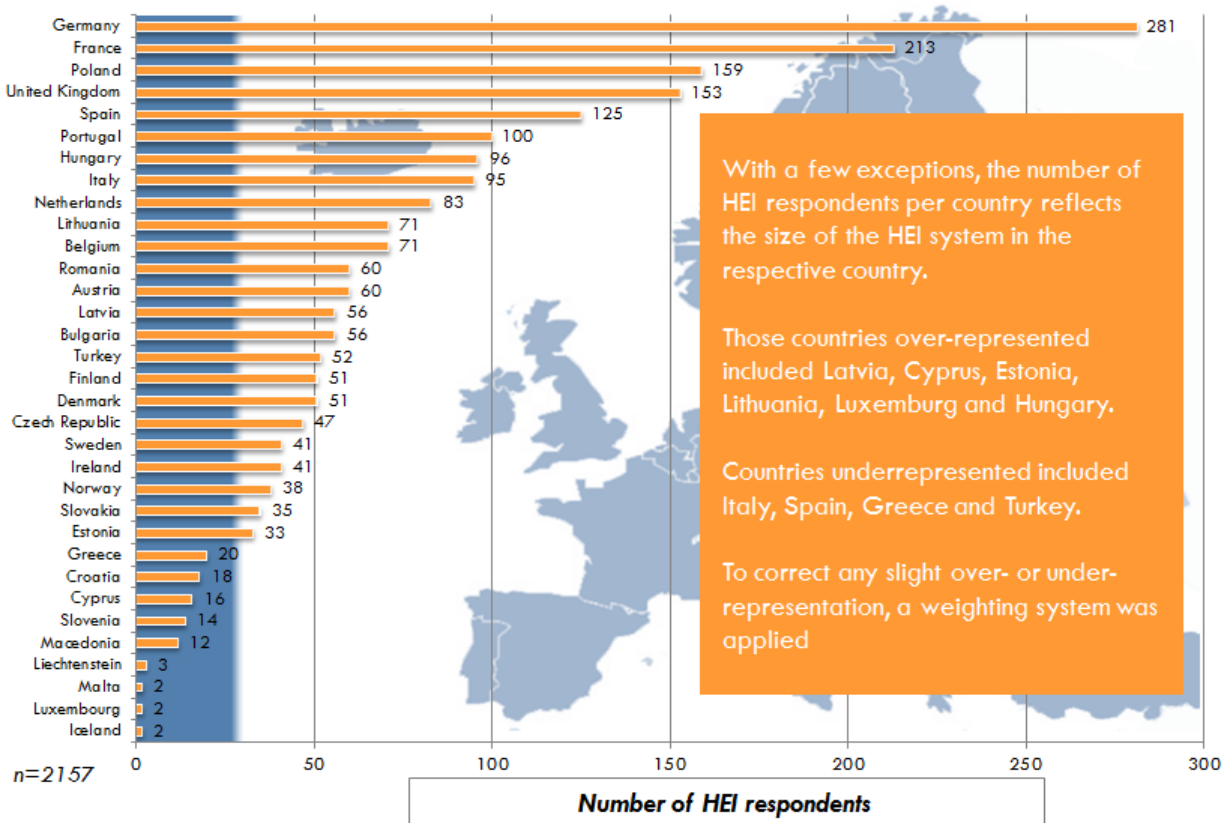


Gender of respondents in Europe

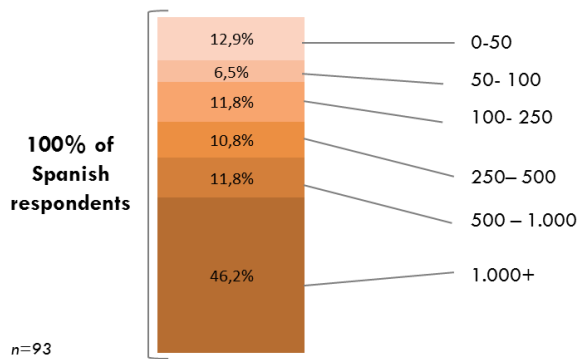


Respondents (HEIs)

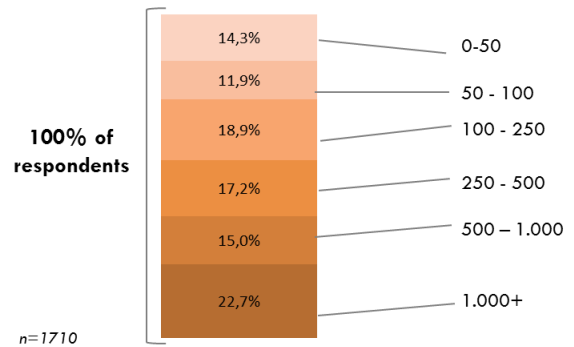
Country



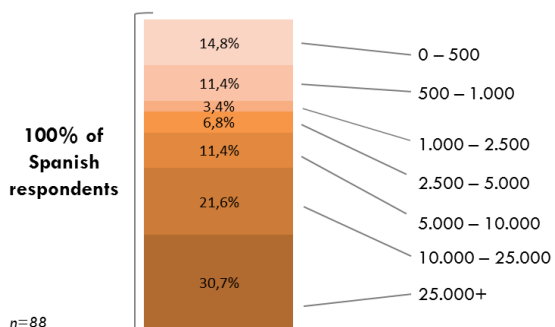
Number of academics per HEI in Spain



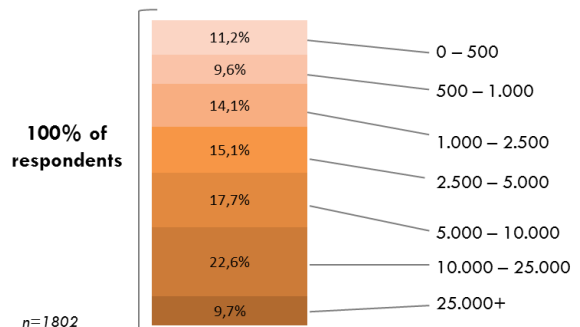
Number of academics per HEI in Europe



Number of students per HEI in Spain



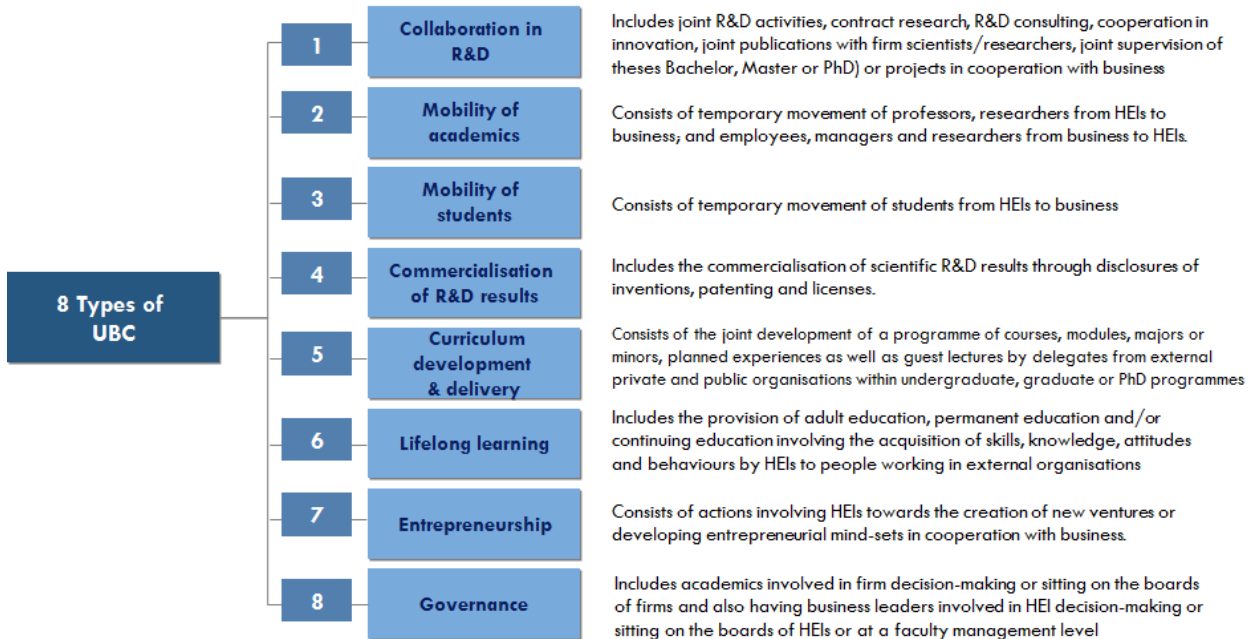
Number of students per HEI in Europe



Results

Extent of UBC

Eight types of cooperation between university and business have been recognised in the *State of European UBC Report* with the following descriptions:



3 clusters of HEI cooperation

In respect to cooperation with business, it was found that HEIs could also be categorised into three clusters:

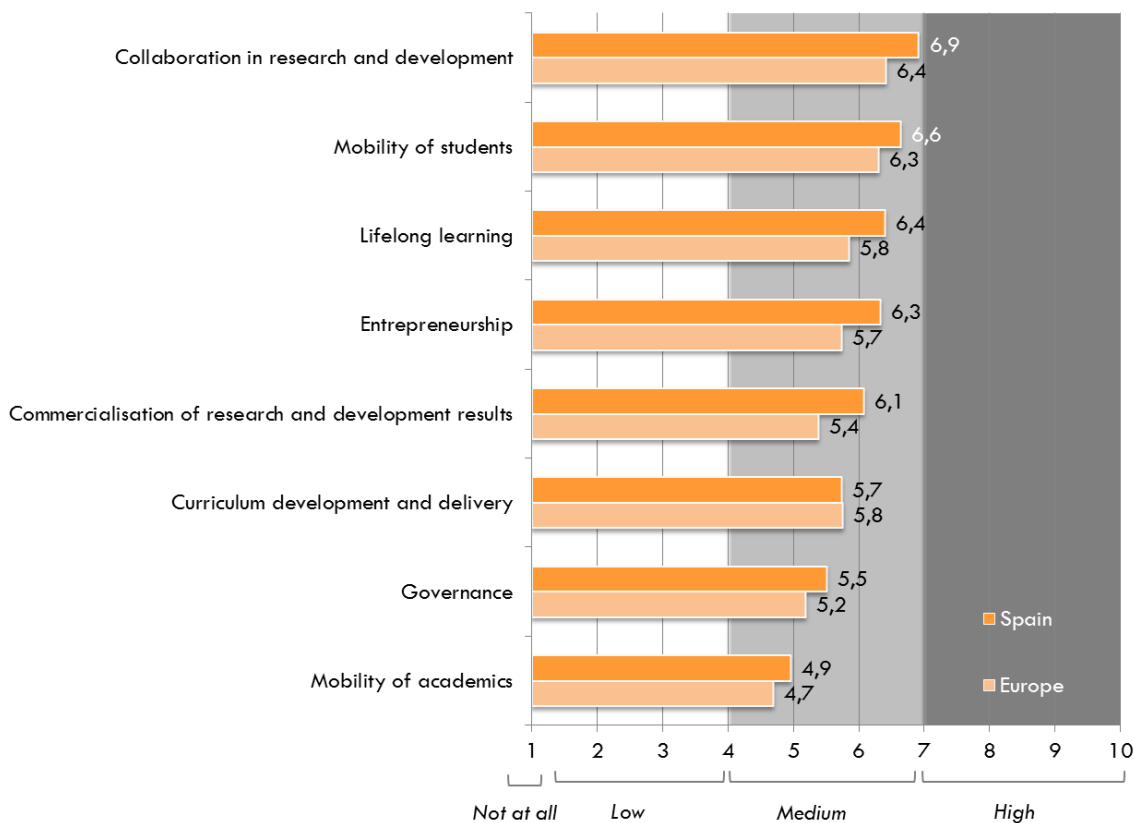
1. the 'innovators' undertaking a higher level for all types of UBC,
2. the 'majority' undertaking a medium level for all types of UBC,
3. the 'laggards' executing generally a low level (or not at all) for all types of UBC.

Relationship among cooperation types

The study identified that HEIs tend to cooperate at a similar level in all UBC types e.g. if they cooperate to a high extent with business in *Collaboration in R&D*, they cooperated to a similar extent for all the types of UBC.

Extent of University-Business Cooperation in Spain

As answered by HEI management



Spanish academics

Responses from Spanish academics about their own level of UBC show that they perceive a much lower

extent of UBC compared to Spanish HEI managers and an extent slightly below the EU average (in brackets).

	Collaboration in R&D	Academic Mobility	Student Mobility	Commercialisation of R&D results	Curriculum development & delivery	Lifelong learning	Entrepreneurship	Governance
Spanish Academics	4,4 (5,0)	2,2 (3,2)	3,6 (4,3)	3,4 (4,1)	3,4 (4,3)	4,1 (4,3)	3,2 (3,4)	2,6 (3,1)

Extent of cooperation in Spain

There is a medium degree of diversity in the development of all the different types of UBC in Spain, being all of them higher than the European average except *curriculum development and delivery*. The most developed types are *collaboration in R&D* (6.9), *mobility of students* (6.6) and *LLL* (6.4).

Benchmarking Spain

According to the results, Spanish HEI management report the extent of UBC being higher than the European average in all the types except in *curriculum development and delivery*, which is slightly lower.

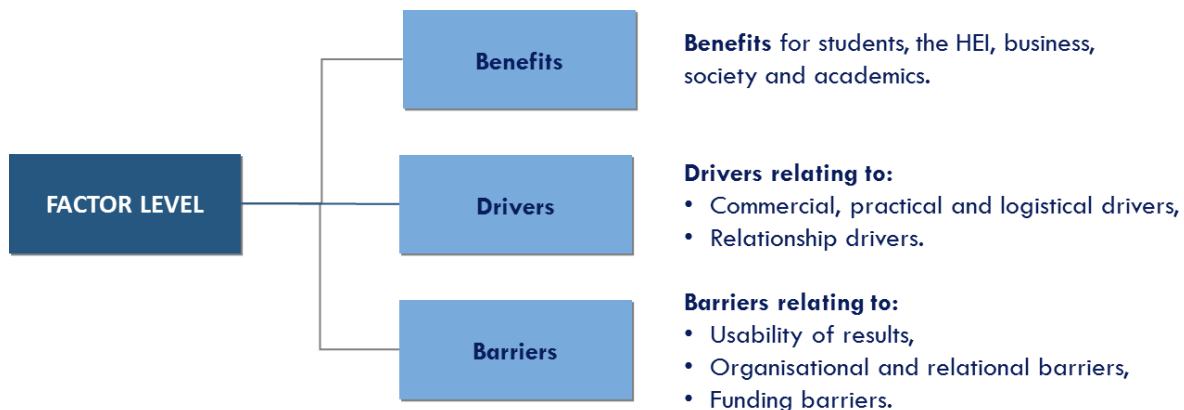
In comparison with the European average, the extent of development of UBC types is as follows:

	Spain	Europe
Highly developed	-	-
Moderately developed	<ol style="list-style-type: none"> 1. Collaboration in R&D 2. Mobility of Students 3. LLL 4. Entrepreneurship 5. Commercialisation of R&D results 6. Curriculum development and delivery 7. Governance 8. Mobility of Academics 	<ol style="list-style-type: none"> 1. Collaboration in R&D 2. Mobility of Students 3. LLL 4. Curriculum development and delivery 5. Entrepreneurship 6. Commercialisation of R&D results 7. Governance 8. Mobility of Academics

Factors influencing the extent of UBC

Factors influencing the extent of UBC

The coming section will outline the extent to which a number of factors affect cooperation within business in Spain. These factors have been found to significantly influence cooperation within the European context.



Relationship between barriers and drivers

A barrier provides a hindrance or obstacle to do something, while a driver provides the motivation to do that thing. More specifically, removing a *Barrier* does not create UBC, rather it makes UBC possible. It is the driver that means that an academic will cooperate with business. As an example even when the lack of funds is nominated as the highest barrier (obstacle), owing to the impossibility of cooperating without funds, the presence of funds may not be enough to cooperate if the *relationship drivers* or perceived benefits (motivators) are not developed.

Benefits explained

Benefits are the perceived positive outcome (financial and non-financial) from undertaking UBC for the different stakeholders groups that can potentially participate in UBC. This perception can be a reason to increase or decrease their participation or the involvement of other groups. For example, if academics perceive their own benefits to be low, that might cause a low participation in UBC and if they perceive that *benefits* for students are high, they might undertake actions that contribute to students' involvement in UBC.

Barriers hindering UBC in Spain

Barriers are those obstacles that restrict or inhibit the ability of the academic or HEI to engage in UBC.

The following table explains the extent of relevance of *Barriers* to UBC by academics (green) and HEIs (orange) in Spain compared to the European average. The *Barriers* have been factored into 'meta-groups' to provide a more strategic understanding of *Barriers*.

Barriers (grouped) to cooperation – Spain vs Europe

As answered by academics and HEI management

Usability of results	Extent of relevance (1-10)		Extent of relevance (1-10)	
	Spain		Europe	
	ACAD	HEI	ACAD	HEI
<ul style="list-style-type: none"> The focus on producing practical results by business, The need for business to have confidentiality of research results, Business fear that their knowledge will be disclosed. 	6.1	6.1	6.1	6.0

Funding barriers	Extent of relevance (1-10)		Extent of relevance (1-10)	
	Spain		Europe	
	ACAD	HEI	ACAD	HEI
<ul style="list-style-type: none"> Lack of external funding for University-Business cooperation, Lack of financial resources of the business, Lack of HEI funding for UBC, The current financial crises. 	7.2	7.7	6.5	6.8

Relational barriers	Extent of relevance (1-10)		Extent of relevance (1-10)	
	Spain		Europe	
	ACAD	HEI	ACAD	HEI
<ul style="list-style-type: none"> Business lack awareness of HEI research activities / offerings, The limited absorption capacity of SMEs to take on internships or projects, Differing time horizons between HEI and business, Differing motivation / values between HEI and business, Universities lack awareness of opportunities arising from UB-cooperation, Bureaucracy within or external to the HEI , Limited ability of business to absorb research findings, Differing mode of communication and language between HEI and business, A lack of contact people with scientific knowledge within business, Difficulty in finding the appropriate collaboration partner, No appropriate initial contact person within either the HEI or business. 	7.1	7.0	6.4	6.2

The table above shows that Spanish HEI management and academics assess *funding barriers* and *relational barriers* higher than the European average, whereas the *usability of results* is equal to the European average. Comparing Spanish HEI representative with Spanish academic responses, results show that HEI

Three groups of University-Business Cooperation barriers

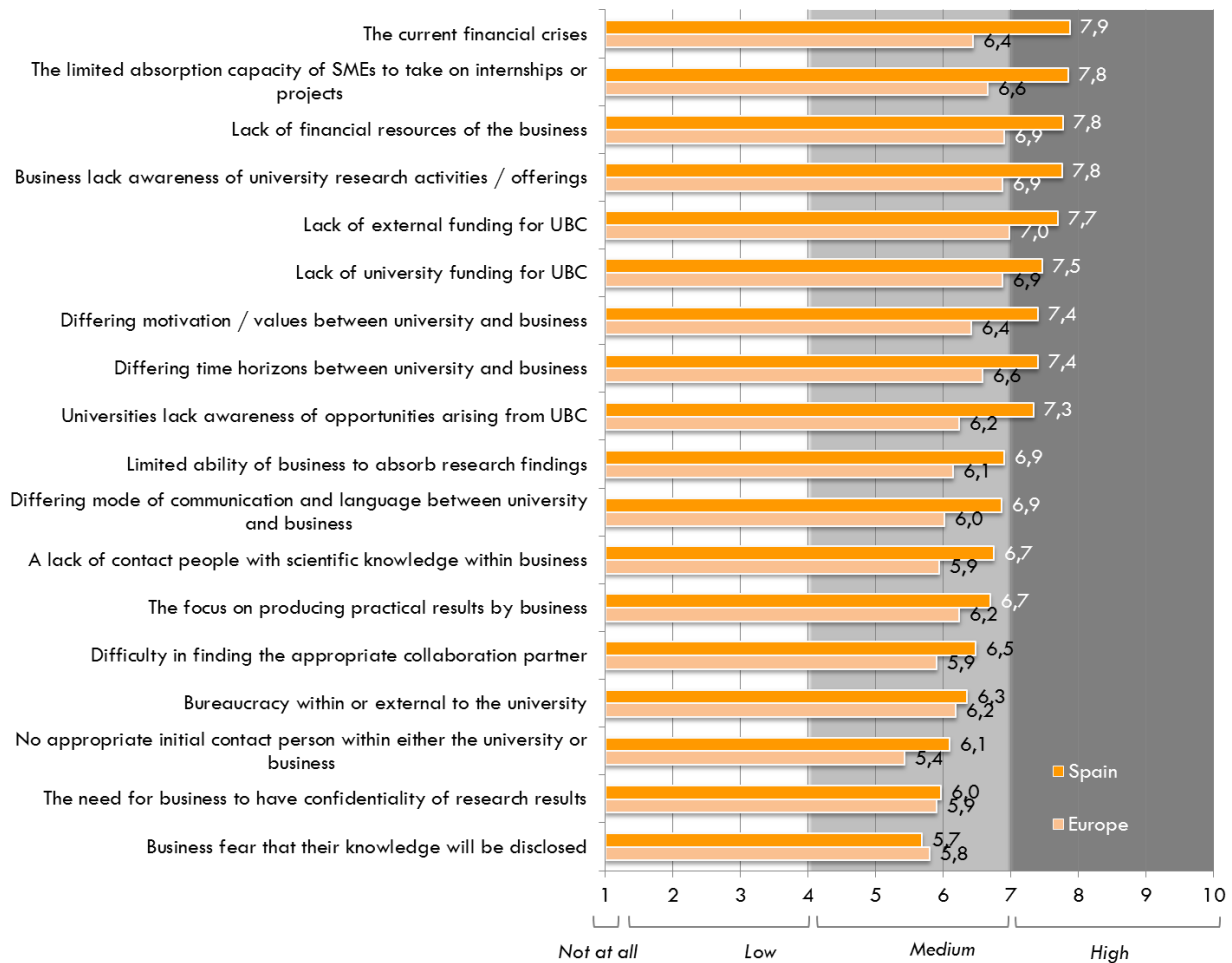
Resulting from a factor analysis of the results, *Barriers* can be categorised in the following groups:

1. *usability of results,*
2. *funding barriers* and
3. *relational barriers.*

managers perceive barriers to be generally higher, especially funding barriers, showing a more negative view of the UBC conditions.

Main barriers to cooperation – Spain vs Europe

As answered by HEI management



Funding barriers are perceived the biggest UBC barriers

The graph above shows that the most prominent barriers named by the Spanish HEI management (and academics) are those related to funding cooperation between the HEI and business including 'the current financial crisis' (7.9), 'lack of financial resources of the business' (7.8), 'lack of external funding for UBC' (7.7), and 'lack of university funding for UBC' (7.5). This reflects how the financial situation in Spain and the perceived lack of funding is considered a critical barrier. In addition, Spanish HEI management reported the 'the limited absorption capacity of SMEs to take on internships or projects' (7.8) as a key issue, especially with almost all companies in Spain (99,88%) are SMEs¹⁰ and most of them are micro companies (95,5% vs UE27 average of 92,2% in 2011)¹¹, which vastly limits innovation capabilities. Additionally, the percentage of Spanish firms that have declared to make any type of innovation is lower than in most EU countries.

¹⁰ According to the Directorio Central de Empresas (DIRCE), in January 2012 there were in Spain 3.195.210 firms, from which 3.191.416 (99,88%) were SMEs (between 0 y 249 employees).

¹¹ Structural Business Statistics Database (Eurostat)

UBC barriers are perceived higher than in Europe

Spanish HEI management assess most barriers of a higher relevance than the European average, except for the *usability of results barriers*, which are perceived to be of a medium extent. After the lack of funding, relational barriers are perceived to be a major hindrance when it comes to undertaking UBC, being these related to culture and human behaviour. The highest gaps between the Spanish and European averages are found in 'business lack awareness of university research activities (7.8 compared to 6.9) and 'differing motivation / values between university and business (7.4 compared to 6.4), 'the limited absorption capacity of SMEs to take on internships or projects' (7.8 compared to 6.6).

Main barriers to UBC in Spain

1. The current financial crisis
2. The limited absorption capacity of SMEs to take on internships or projects
3. Lack of financial resources of the business
4. Business lack awareness of university research activities
5. Lack of external funding for UBC

Drivers stimulating UBC in Spain

Drivers are those factors that encourage academics or HEIs to engage in UBC.

The following table explains the extent of relevance of *drivers* of UBC by academics (green) and HEIs (orange) in Spain compared to the European average. The *drivers* have been factored into 'meta-groups' in order to provide a more strategic understanding.

Drivers (grouped) of cooperation – Spain vs Europe

As answered by academics and HEI management

Relationship drivers	Extent of facilitation (1-10)		Extent of facilitation (1-10)	
	Spain		Europe	
	<ul style="list-style-type: none"> Existence of mutual trust, Existence of mutual commitment, Having a shared goal, Understanding of common interest by different stakeholders (e.g. universities; business; individuals; students), Prior relation with the business partner, Cooperation as effective means to address societal challenges and issues. 	ACAD	6.0	ACAD
	HEI	6.9	HEI	7.0

Business drivers	Extent of facilitation (1-10)		Extent of facilitation (1-10)	
	Spain		Europe	
	<ul style="list-style-type: none"> Employment by business of HEI staff and students, Interest of business in accessing scientific knowledge, Possibility to access funding / financial resources for working with business, Short geographical distance of the HEI from the business partner Flexibility of business partner, Access to business-sector research and development facilities Commercial orientation of the HEI. 	ACAD	5.1	ACAD
	HEI	6.4	HEI	6.7

Spanish respondents see the drivers of UBC similarly to EU respondents

The table above shows that both factored *drivers* of UBC are assessed lower by both Spanish HEI management and academics in comparison with their European counterparts, but with *relationship drivers* still perceived to be more important than *business drivers*. The highest difference identified is in respect

Two groups of UBC Drivers

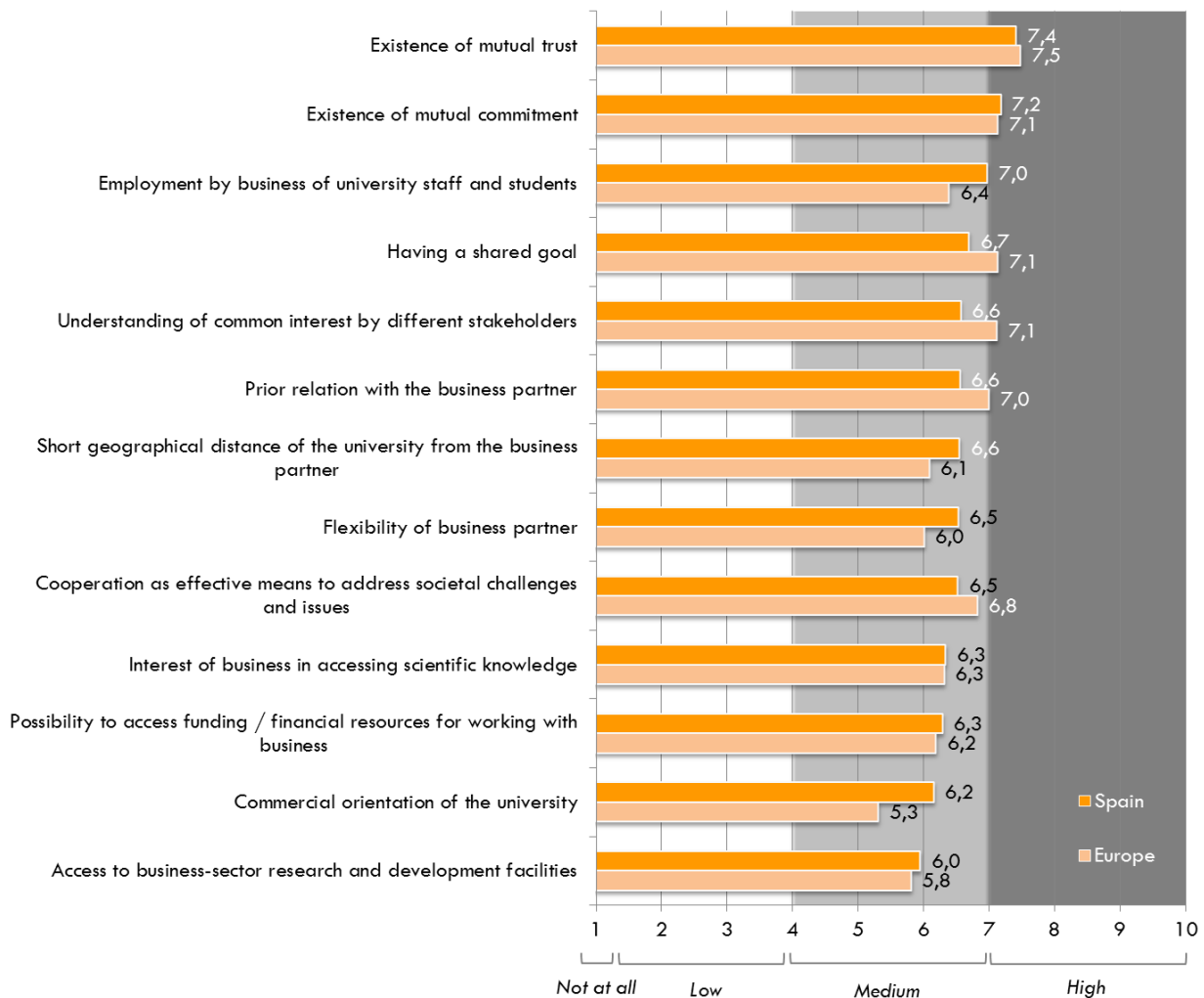
Resulting from a factor analysis of the results, *Drivers* can be categorised in the following groups:

1. *relationship drivers* and
2. *business drivers*.

to business drivers, with Spanish respondents assessing it as a lesser driver (6.0) than in Europe (6.7). The perception of low drivers by Spanish academics and HEI management in comparison to the European average could lead to a much lower engagement in UBC, since they simply do not clearly see the reasons why they should do it.

Main drivers of cooperation – Spain vs Europe

As answered by HEI management



Relationships drive UBC in Spain

The HEI management in Spain perceive the highest drivers of UBC to be ‘relationship drivers’ such as ‘existence of mutual trust’ (7.4) and ‘existence of mutual commitment’ (7.2), this is the same in the European context. Among the highest drivers, there is only one business driver, related with ‘employment by business of university staff and students’ (7.0), illustrating a greater importance of students in UBC, above the European average.

However, compared to the ‘relationship drivers’, the graph above portrays that most ‘business drivers’ are seen as considerably less important including ‘short geographical distance of the university from the business partner’ (6.6), ‘flexibility of business partner’ (6.5), ‘interest of business in accessing scientific knowledge’ (6.0), and ‘possibility to access funding / financial resources for working with business’ (6.3).

Therefore, it can be said that both HEI management and academics in Spain agree that ‘relationship drivers’ are greater facilitators for UBC than ‘business drivers’. This reflects the particular nature of cooperation, which is highly based in successful long term personal relationships, where trust and commitment play a key role.

Main drivers of UBC in Spain

1. Existence of mutual trust
2. Existence of mutual commitment
3. Employment by business of university staff and students
4. Having a shared goal
5. Understanding of common interest by different stakeholders

Benefits of cooperation (academic perspective)

Benefits are the positive results that stakeholders perceive that they obtain from undertaking UBC.

The following table explains the extent of relevance of *benefits* of UBC by academics (green) in Spain compared to the European average. The *benefits* have been factored into 'meta-groups' to provide a more strategic understanding.

Four groups of University-Business Cooperation benefits for academics

Resulting from a factor analysis of the results, *Benefits* for academics can be categorised in the following groups:

1. *benefits for students,*
2. *benefits for business,*
3. *benefits for HEIs and*
4. *personal benefits for academics.*

Benefits (grouped) from cooperation – Spain vs Europe

As answered by academics

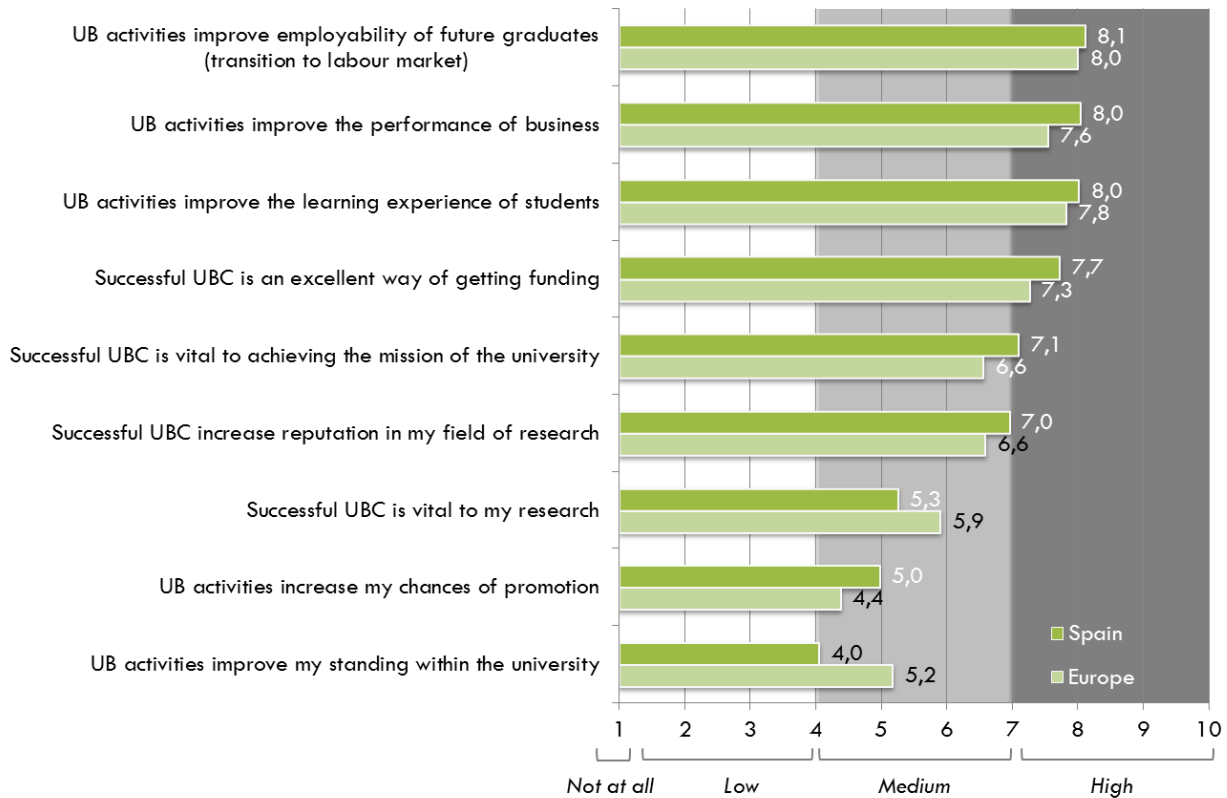
Benefits for students <ul style="list-style-type: none"> • UB activities improve employability of future graduates • UB activities improve the learning experience of students 	Extent of importance (1-10)		Extent of importance (1-10)	
	Spain		Europe	
	ACAD	8.0	ACAD	7.9
Benefits for business <ul style="list-style-type: none"> • UB activities improve the performance of business 	Extent of importance (1-10)		Extent of importance (1-10)	
	Spain		Europe	
	ACAD	8.0	ACAD	7.6
Benefits for HEIs <ul style="list-style-type: none"> • Successful UBC is vital to achieving the mission of the HEI 	Extent of importance (1-10)		Extent of importance (1-10)	
	Spain		Europe	
	ACAD	7.1	ACAD	6.6
Benefits for academics <ul style="list-style-type: none"> • Successful UBC is an excellent way of getting funding • Successful UBC increases my reputation in my field of research • Successful UBC is vital to my research • UB activities improve my standing within the university • UBC activities increase my chances of promotion 	Extent of importance (1-10)		Extent of importance (1-10)	
	Spain		Europe	
	ACAD	5.8	ACAD	5.9

Overall, Spanish academics perceive the *benefits* from UBC to be of slightly higher for students, notably higher for business and HEIs, and to be of slightly lower for themselves. Compared to these relatively high *benefits* for all other stakeholders (8.0, 8.0, 7.1),

academics perceive their own *benefits* from UBC much lower (5.8). If academics do not see their own *benefits* in collaborating with business, it is much less likely that they engage in UBC due to the fact that it brings only *benefits* for other groups.

Benefits from cooperation – Spain vs Europe

As answered by academics



Academics think that students get the highest benefit from UBC

Academics in Spain think that the greatest benefits from UBC are for students ('University-Business activities improve employability of future graduates' (8.1) and 'UB activities improve the learning experience of students' (8.0), even to a higher level than the rest of Europe. They also see the benefits for businesses 'UB activities improve the performance of business' (8.0).

Following this two groups, academics recognise the benefits of UBC for the HEI 'Successful UBC is vital in achieving the mission of the university' (7.1), still at a high level. Finally, academics rate their own benefits the lowest.

Spanish academics perceive low self-benefit from UBC activities

Whilst academics report that UBC is an excellent way of getting funding (7.7), they are much more negative regarding their benefits with respect to UBC role in their research (5.3), their chances of promotion (5.0) and their standing in the university (4.0). It seems that academics only see potential financial benefits from UBC but literature states that they are often more driven by non-financial benefits.

Spanish academics perceive slightly more benefits from UBC than in Europe

Even when in Spain there is still room for improvement, in comparison with the European average, Spanish academics see benefits slightly higher. Two exceptions are the benefit 'successful UBC is vital to my research' (5.9 compared to 5.3) and especially 'UB activities improve my standing within the university' (5.2 compared to 4.0). This shows that the research carried out in Spanish HEIs might not be applied in many cases and that HEI managers are not institutionalising UBC including it in the assessment or changing to a culture that recognise, embrace and value this third mission.

Main benefits of UBC identified by Spanish academics	
1.	UB activities improve employability of future graduates
2.	UB activities improve the performance of business
3.	UB activities improve the learning experience of students
4.	Successful UB cooperation is vital to achieving the mission of the university
5.	Successful UB cooperation is an excellent way of getting funding

Benefits of cooperation (HEI perspective)

Benefits are the advantages that are received by the stakeholders from undertaking UBC.

The following table explains the extent of relevance of perceived *benefits* of UBC by HEI management (orange) in Spain compared to the European average. The *benefits* have been factored into 'meta-groups' to provide a more strategic understanding of UBC *Barriers*.

Benefits (grouped) from cooperation – Spain vs Europe

As answered by HEI management

Benefits for the HEI	Extent of importance (1-10)		Extent of importance (1-10)	
	Spain		Europe	
	HEI	8.2	HEI	7.7
<ul style="list-style-type: none"> • UBC is vital to achieving the mission of the HEI. 				

Benefits for students	Extent of importance (1-10)		Extent of importance (1-10)	
	Spain		Europe	
	HEI	9.2	HEI	8.5
<ul style="list-style-type: none"> • UBC increases skills and graduate development 				

Benefits for business and society	Extent of importance (1-10)		Extent of importance (1-10)	
	Spain		Europe	
	HEI	8.7	HEI	7.3
<ul style="list-style-type: none"> • UBC has beneficial effects on the local industry • UBC improves regional productivity • UBC creates local employment • UBC increases local GDP and disposable income • UBC creates a range of beneficial social and recreational benefits 				

In the factored results, it can be seen that Spanish HEI management perceive the benefits obtained from UBC higher than the European average for each one of the three different groups. The difference is especially large for the benefits for business and

Three groups of University-Business Cooperation benefits for Higher Education Institutions

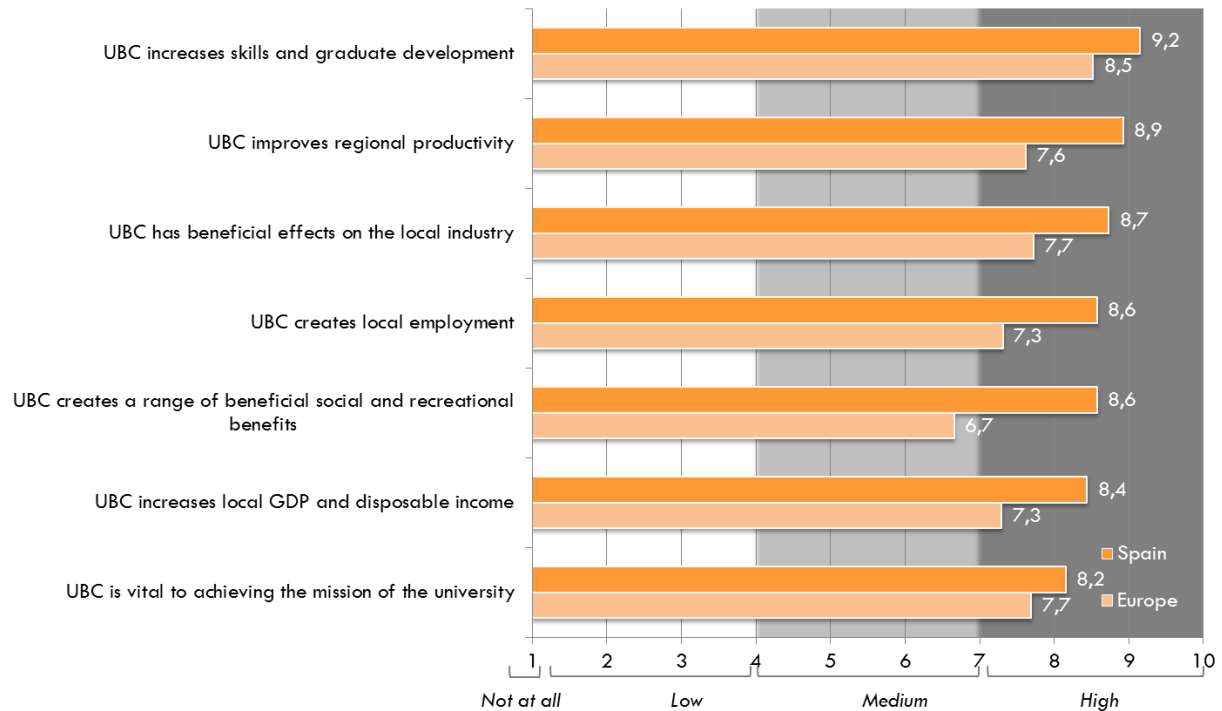
Resulting from an analysis of the results, *Benefits* for HEIs can be categorised in the following groups:

1. *benefits for students,*
2. *benefits for business and society, and*
3. *benefits for HEIs.*

society. This reflects the importance given to this topic at management level and should be translated into actions in order to take advantage of those potential benefits.

Benefits from cooperation – Spain vs Europe

As answered by HEI management



Students get the most benefit from UBC say HEIs

HEI management in Spain perceive all benefits from UBC to be of a high extent, this related with the results of their high commitment and long term approach. Like academics, they perceive the benefits for students as the highest one ('UBC increases skills and graduates development' – 9.2), being regional benefits perceived as the second most important ones ('UBC improves regional productivity' – 8.9). These benefits are closely followed by those for businesses ('UBC has beneficial effects on the local industry' – 8.7), and society ('UBC creates local employment' – 8.6). The lowest rated benefit is the one for the UBC contribution to the mission of the university (8.2), although it is still rated high. The perception of high benefits reflects the commitment to UBC and the high level of development.

Higher benefit perceived from UBC for students, business, society and HEIs by Spanish HEI management than in Europe

Comparing the results to the European average, it can be stated that Spanish HEI management see considerably higher benefits for all stakeholders from UBC than in Europe. The biggest gaps can be found in the perception of social and recreational benefits (1.9 difference), as well as in local employment and regional productivity (1.3 difference). The closest differences are seen in benefits for the HEI (0.5 points) and students' skills (0.7 points difference).

Main benefits of UBC identified by Spanish HEI management

1. UBC increases skills and graduate development
2. UBC improves regional productivity
3. UBC has beneficial effect on the local industry
4. UBC creates local employment
5. UBC creates a range of beneficial social and recreational benefits

Benchmark

...universities in your region!

Assisting governments and universities improve University-Business Cooperation

Using the State of European University-Business Cooperation study results, decision makers, managers and practitioners involved in university-business cooperation can benefit from receiving:

1. a benchmark in terms of UBC of your organisation, institution, sector, region or country against others.
2. a clear picture of progress in efforts to increase university-business cooperation,
3. proactive areas of focus for increasing UBC,
4. the required information to advance university-business cooperation within their region or institution

Provided to your organisation in the form of a report and/or presentation, a state of the UBC report dedicated to your organisation can assist with developing greater financial and other benefits from University-Business Cooperation



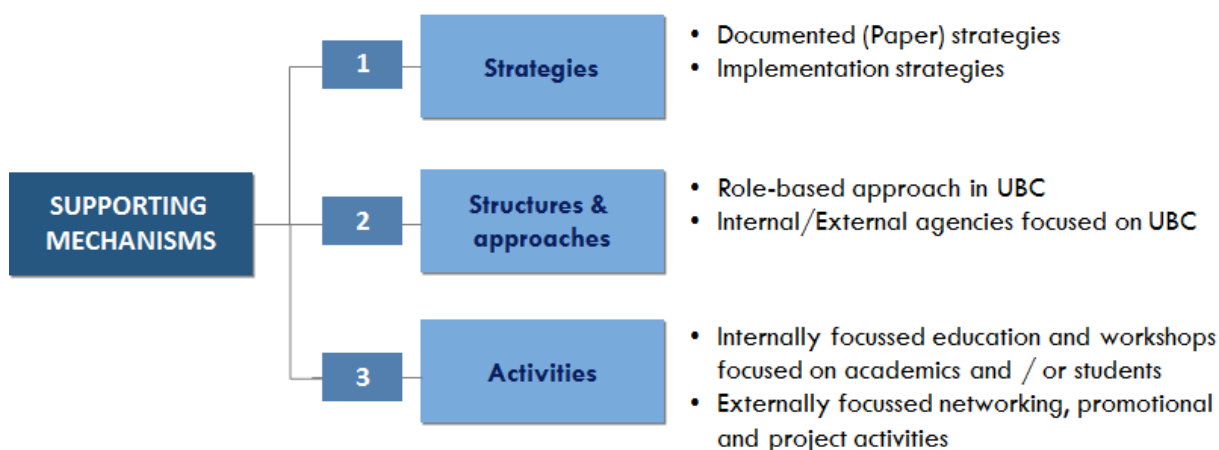
...your university!

Please contact davey@apprimo.com for more information.

Supporting mechanisms for UBC

Supporting mechanisms are interventions designed to support the development of cooperation between HEIs and business.

The coming section will outline the extent to which UBC *Supporting mechanisms* are developed in Spain. The development of these mechanisms has been found to significantly influence cooperation within the European context.



Supporting mechanisms explained

The UBC *Supporting mechanisms* constitute the 'action-level', where all stakeholders need to focus their efforts when they want to influence the extent of UBC.

The specific role and importance of *Supporting mechanisms* at HEIs has long been recognised in both practice and literature. They are often recognised in multiple ways including (i) in a variety of different names (e.g. interventions, enablers), (ii) captured in a model (e.g. ecosystem, regional innovation system) or (iii) known as individual elements (e.g. activities, infrastructure).

A key finding of the *State of European UBC Report* was that the extent of development of the *Supporting mechanisms* was found to significantly affect the extent of general activity between HEIs and business. The nature of the *Supporting mechanisms* in terms of (i) responsibility, (ii) expense and (iii) time to impact are summarised in the table below.

	Primary responsibility for the mechanism	Secondary responsibility	Expense	Time to impact
Strategies	HEI management	All UBC stakeholders	Low	Long term
Structures and approaches	HEI / regional Govt. and agencies	Regional UBC stakeholders	Agencies: High Personnel: Med-high	Agencies: Long Personnel: Medium
Operational activities	Knowledge transfer Professionals	Regional UBC stakeholders	Medium	Short-medium term

Strategies for UBC in Spain

Strategies are the drafting and implementation of cross-functional decisions by a HEI that will enable it to achieve its long-term objectives with respect to UBC.

The primary responsibility for the creation of UBC strategies is with HEI management as a strategic instrument is usually created by decisions made at a HEI board level.

Two groups of University-Business Cooperation strategies

Resulting from an analysis of the results, *Strategies* can be categorised in the following groups:

1. *Documented strategies*
2. *Implementation and motivation strategies*

Development of University-Business Cooperation Strategies (grouped) – Spain vs Europe

As answered by HEI management

Documented (Paper) strategies	Extent of development (1-10)		Extent of development (1-10)	
	Spain		Europe	
	HEI	7.0	HEI	6.8
<ul style="list-style-type: none"> • A top-level management committed to University-Business cooperation, • A documented mission / vision embracing University-Business cooperation, • A strategy for University-Business cooperation, • The internal promotion of University-Business cooperation., • The external promotion of University-Business cooperation. 				

Implementation and motivation strategies	Extent of development (1-10)		Extent of development (1-10)	
	Spain		Europe	
	HEI	5.5	HEI	5.4
<ul style="list-style-type: none"> • The dedication of resources (inc. funding) to support University-Business cooperation, • The provision of incentives for academics to encourage University-Business cooperation, • The inclusion of 'cooperation with business' as part of the assessment of work performance for academics. 				

On a factored level, *documented strategies* are considerably more developed in Spain than *implementation and motivation strategies supporting UBC*. Overall, no large differences between development in Spain and in Europe can be found on a factored level. In both cases, these results show that there seem to be an official commitment of the HEI

management to UBC and UBC is promoted both internally and externally. However, the real dedication of resources and mechanisms that institutionalise UBC, such as incentive or the inclusion of UBC in the academics assessment is much lower. A conversion of documents and formalities into real actions is needed in order to further develop UBC.

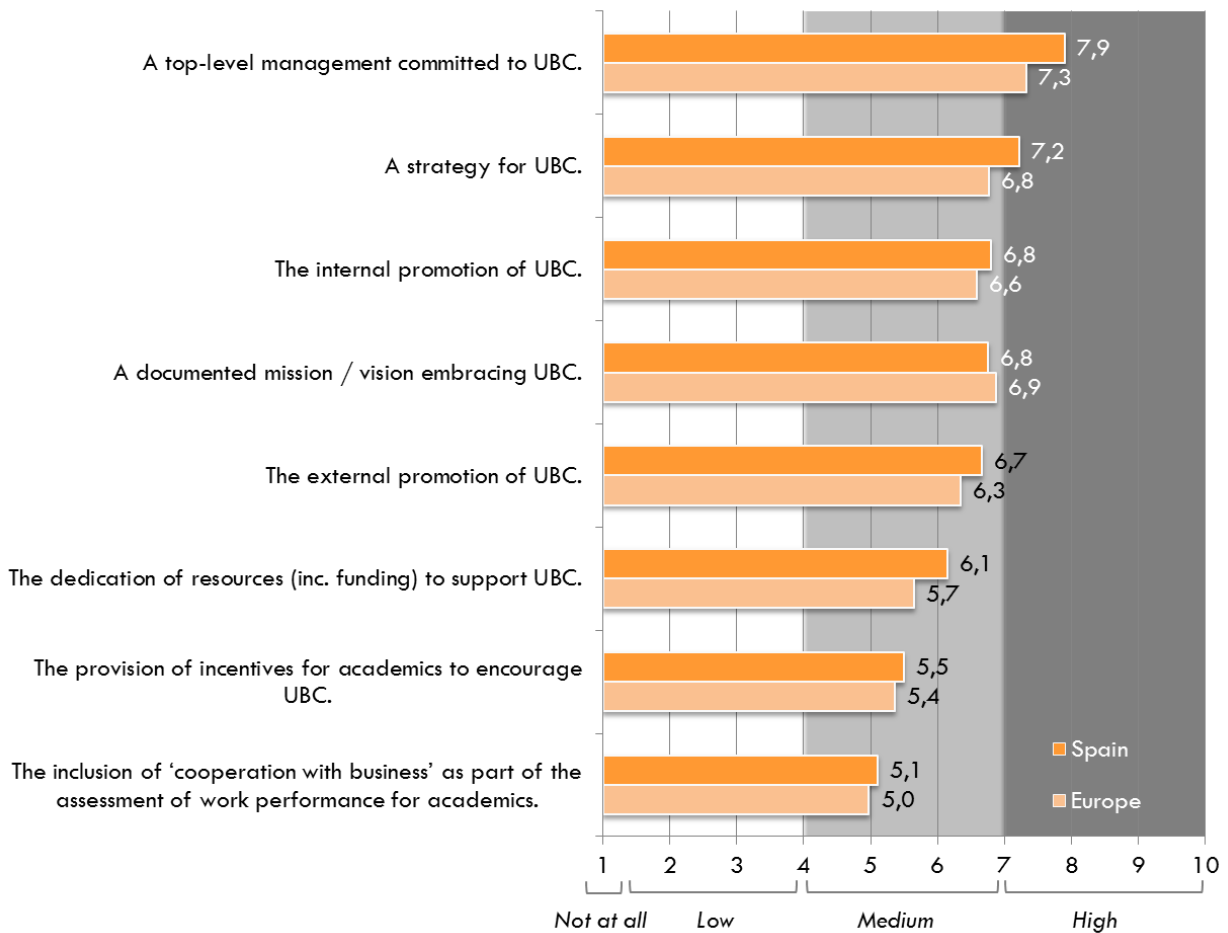
Perception of academics

Academics were also asked to respond to the level of development of UBC *Strategies*. Overall they assessed the level of development to be 4,4 on the 10 point scale (compared with 6,5 by HEI managers), one of the lowest in Europe and *implementation Strategies* at 3,3 (compared with 5,5 by HEI managers, see above),

also one of the lowest in Europe. This suggests a significant disconnect between HEI managers and academics. Crucially, with academics being the ones undertaking UBC (or not), this suggests a disappointingly lack of understanding by HEI managers, the ones responsibility for stimulating UBC.

Development of University-Business Cooperation Strategies – Spain vs Europe

As answered by HEI management



Documented strategies are the most developed strategies in Spain

The most developed UBC strategy are Spain, as reported by Spanish HEI management, are 'a top-level management committed to UBC' (7.9), and 'a strategy for UBC' (7.2), which are a first step and reflect the official commitment, but still need to be translated to real actions towards UBC. 'The internal promotion of UBC' (6.8) is also rated high. On the other extreme, the strategies to transform the commitment into actions and motivations are the least developed strategies: 'the inclusion of cooperation with business as part of the assessment of work performance for academics' (5.1), 'the provision of incentives for academics to encourage UBC' (5.5) and 'the dedication of resources, incl. funding, to support UBC' (6.1).

Strategies are slightly more developed in Spain than in Europe

When compared to the European average, Spain shows a slightly higher extend of implementation of UBC strategies, but with most items showing only a small difference in responses. Most of them are

developed at a medium level and the only statement where the value is higher in Europe than in Spain is 'a documented mission / vision embracing UBC' (6.8 for Spain and 6.9 for Europe).

Highly developed	<ol style="list-style-type: none"> 1. A top-level management committed to UBC 2. A strategy for UBC
Moderately developed	<ol style="list-style-type: none"> 3. The internal promotion of UBC 4. A documented mission / vision embracing UBC 5. The external promotion of UBC 6. The dedication of resources (incl. funding) to support UBC 7. The provision of incentives for academics to encourage UBC 8. The inclusion of 'cooperation with business' as part of the assessment of work performance for academics

Structures and approaches for UBC in Spain

UBC *Structures and approaches* are constructions created as a result of top-level strategic decisions within (or related to) a HEI that are an ‘enabler’ of UBC and include the creation or development of institutions, positions, methods and policies and programmes. They are put in place in order to promote, develop or implement UBC with a mid to long term focus and can be created within the HEI or as a bridge between the HEI and business. *Structures and approaches* usually involve significant investment and can be funded by the HEI, the government, business or a combination of these sources.

Two groups of University-Business Cooperation structures and approaches

Resulting from an analysis of the results, *Structures and approaches* can be categorised in the following groups:

1. *the creation and /or expansion of positions (personnel) and*
2. *agencies (units of focus).*

Development of University-Business Cooperation Structures and approaches (grouped) – Spain vs Europe

As answered by HEI management

Roles-based approaches in UBC	Extent of development (1-10)		Extent of development (1-10)	
	Spain		Europe	
	HEI	5.2	HEI	5.4
<ul style="list-style-type: none"> • The presence of academics on company boards, • The presence of business people on the HEI board, • Board member or vice rector positions for UBC. • The practise of recruiting industry professionals into the knowledge transfer area., • An alumni network. 				

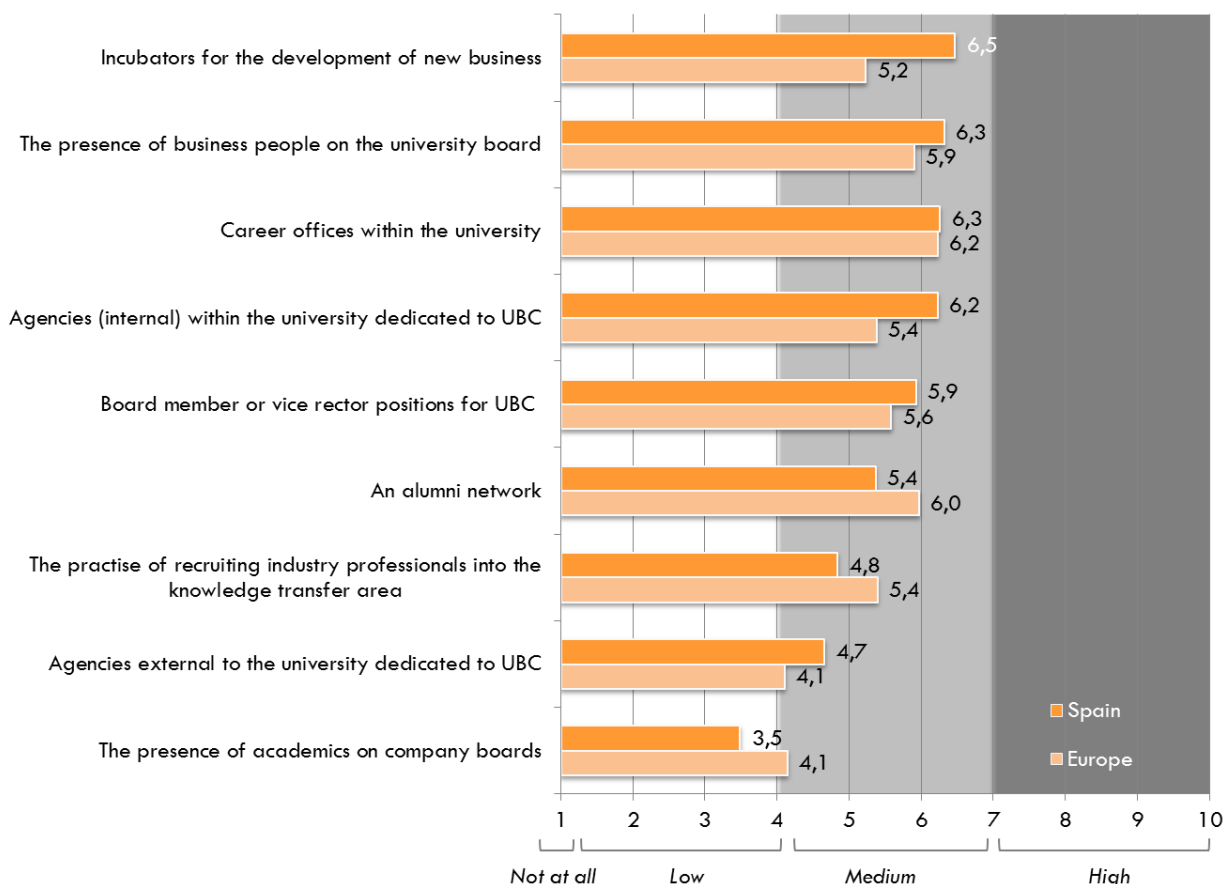
Internal/External agencies focused on UBC	Extent of development (1-10)		Extent of development (1-10)	
	Spain		Europe	
	HEI	5.9	HEI	5.3
<ul style="list-style-type: none"> • Career offices within the HEI, • Agencies external to the HEI dedicated to UBC • Agencies (internal) within the HEI dedicated to UBC, • Incubators for the development of new business. 				

While *role-based approaches* shows a similar extent of development in Spain and the rest of Europe (5.2 compared to 5.4), *internal/external agencies focused on UBC* are more developed in Spain (5.9 to 5.3). The development of agencies to support the UBC processes is characteristic of a very active UBC

environment and a long term commitment by the UBC actors, due to the financial investment required. However, once structures are put in place, their efficient running must be guaranteed, as a measure of success.

Development of University-Business Cooperation Structures and approaches –Spain vs Europe

As answered by HEI management



Incubators for the development of new business is the most developed approach in Spain

The development of UBC structures and approaches in Spain shows that *internal/external agencies focused on UBC* are significantly more developed than *role-based approaches in UBC* (5.9 compared to 5.2). This is supported by the result shown in the graph above where the 'incubators for the development of new business' (6.5). Around 50-60% of Spanish HEIs have Science Parks and/or incubators, although most of them have some kind of support for new business development¹². Incubators are followed by 'career offices within the university' (6.3) and 'agencies (internal) within the university dedicated to UBC' (6.2).

Different development of structures and approaches compared to Europe

Incubators and internal agencies dedicated to UBC are notably more developed in Spain than in the rest of Europe (6.5 compared to 5.2 and 6.2 compared to 5.4). However, 'alumni network' is not a common and established structure within Spanish HEIs and 'professionals in the knowledge transfer area' is less developed than the European average, being all of them essential structures for the transfer of knowledge

and the increase of UBC. The current crisis is affecting much more the amount of personnel within the technology transfer offices (TTOs). Overall, in respect to agencies, Spain has generally more 'external and internal agencies dedicated to UBC' compared to the European average.

Medium developed structures & approaches	1. Incubators for the development of new business
	2. The presence of business people on the HEI board
	3. Career offices within the university
	4. Agencies (internal) within the HEI dedicated to UBC
	5. Board member or vice rector positions for UBC
	6. An alumni network
	7. The practise of recruiting industry professionals into the knowledge transfer area
Low developed structures & approaches	8. Agencies external to the university dedicated to UBC
	9. The presence of academics on company boards

¹² Red OTRI and Red UGI (2012)

Operational activities for UBC in Spain

Operational activities are actions of a practical and immediate nature undertaken by HEIs, governments, regional agencies, HEIs and business to create and support UBC. *Operational activities* are usually of minimum cost of the *Supporting mechanisms* and require less commitment from HEI management and whose scope and volume can be described /measured.

Three groups of University-Business Cooperation Operational activities

Resulting from an analysis of the results, *Operational activities* can be categorised in the following groups:

1. *Internally focused education and workshops focused on academics*
2. *Internally focused education and workshops focused on students*
3. *Externally focused networking, promotional and project activities*

Development of University-Business Cooperation Operational activities (grouped) – Spain vs Europe

As answered by HEI management

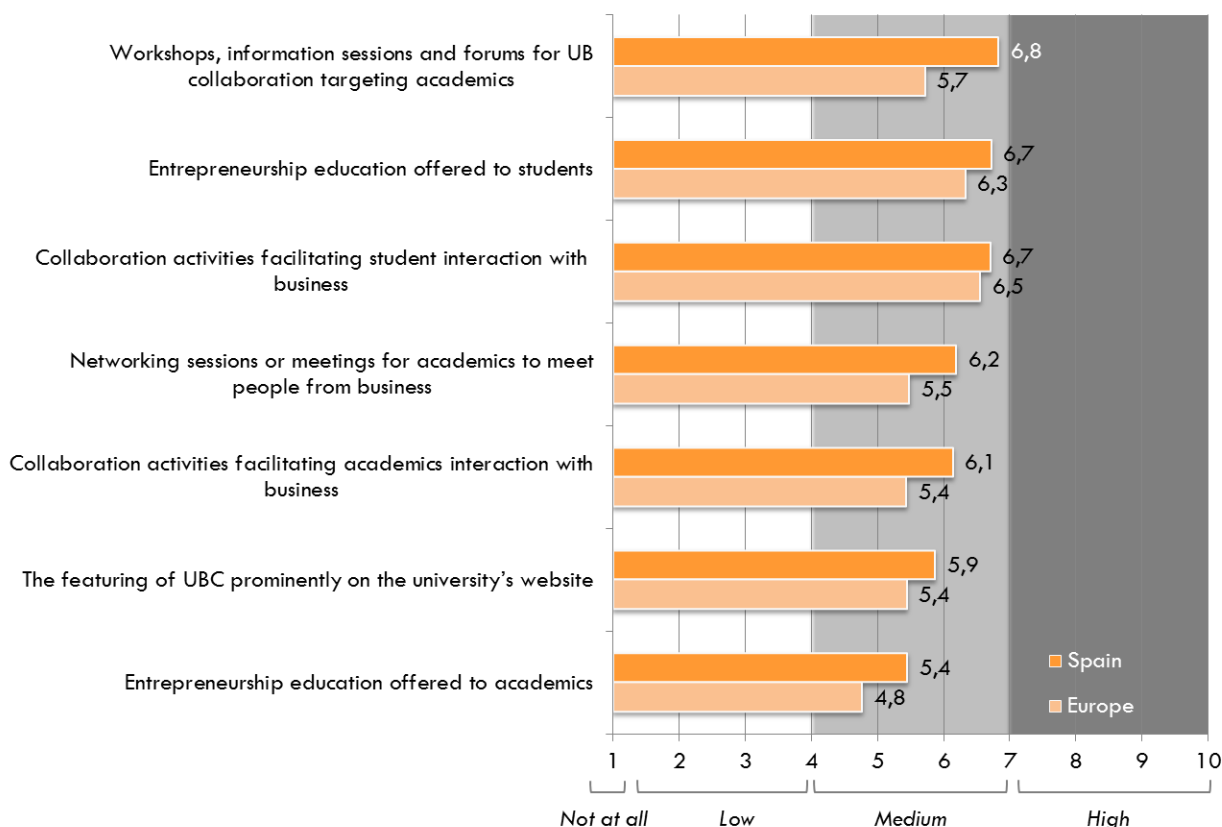
Internally focused education and workshops focused on <u>academics</u> <ul style="list-style-type: none"> • Workshops, information sessions and forums for University-Business collaboration targeting academics, • Entrepreneurship education offered to academics. 	Extent of development (1-10)		Extent of development (1-10)	
	Spain		Europe	
	HEI	6.2	HEI	5.3
Internally focused education and workshops focused on <u>students</u> <ul style="list-style-type: none"> • Entrepreneurship education offered to students. 	Extent of development (1-10)		Extent of development (1-10)	
	Spain		Europe	
	HEI	6.7	HEI	6.3
Externally focused networking, promotional and project activities <ul style="list-style-type: none"> • Networking sessions or meetings for academics to meet people from business, • The featuring of University-Business cooperation prominently on the HEI's website, • Collaboration activities facilitating student interaction with business, • Collaboration activities facilitating academics interaction with business. 	Extent of development (1-10)		Extent of development (1-10)	
	Spain		Europe	
	HEI	6.2	HEI	5.7

On a factored (grouped) level, it can be observed that Spanish HEI management rate the development of the three activities groups higher than the European average. The difference is especially large in the group 'Internally focused education and workshop

focused on academics' (6.2 in Spain compared to 5.3 in Europe). However, the group rated the highest is the one that is internally focus on student and their entrepreneurial education, showing again the importance of students in UBC.

Development of University-Business Cooperation operational activities – Spain vs Europe

As answered by HEI management



There are small differences in the extent of activities

'Workshops, information sessions and forums for UBC collaboration targeting academics' (6.8) is said to be the most developed activity, notably higher than the European average (6.8 compared to 5.7). That is very closely followed by 'entrepreneurship education offered to students' (6.7) and 'collaboration activities facilitating student interaction with business' (6.7). This result aligns with the outcome of the *benefits* section that position students as the group receiving the highest benefits out of UBC. These areas are growing fast, and HEIs are currently undertaking activities or initiatives in students' entrepreneurship area, many of them organised and sponsored by public and private external organisations¹³. However, there is still room for improvement and development of a comprehensive framework for all students' involvement in UBC, through internships, industrial PhDs and specially entrepreneurship.

The least developed activity is 'entrepreneurship education offered to academics' (5.4), due to the absence of established entrepreneurship courses or programmes for academics in in most Spanish HEIs,

the activities for academics are mostly workshops, information sessions and forums (as stated by the most developed activity). 'Collaboration activities facilitating academics interaction with business' (6.1), is also one of the least developed activities, suggesting that academics' activities should not be limited to internal ones, but also to the external environment and their connections with business. In comparison to the European average, Spain rates all activities higher, although their development is still at a medium level and gives room for improvement.

Moderately developed	<ol style="list-style-type: none"> 1. Workshops, information sessions and forums for UBC targeting academics 2. Entrepreneurship education offered to students 3. Collaboration activities facilitating student interaction with business 4. Networking sessions or meetings for academics to meet people from business 5. Collaboration activities facilitating academic interaction with business 6. The featuring of UBC prominently on the university's website 7. Entrepreneurship education offered to academics
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¹³ such as Programme *Iniciativa Emprendedora Universitaria* (by EOI "Escuela de Organización Industrial", jointly supported by the Ministry of Education and Ministry of Industry), Programme *Akademia* (by Bankinter Innovación Foundation), RedEmprendia (by Santander Bank) or Fondo de Emprendedores (by Repsol Foundation) among others.

The UBC Ecosystem

The UBC Ecosystem is a model for understanding the important elements affecting University-Business Cooperation

Model created by

Todd Davey, Victoria Galan-Muros, Arno Meerman

Model validation partners

Science-to-Business Marketing Research Centre, UIIN, apprimo UG

Co-created by

105 practitioners validating the model in their work.

The model relationships have been scientifically validated by the Science-to-Business Marketing Research Centre

1 Indirect outcome (society)

2 Direct outcome (actors)

3 University-Business Cooperation (UBC) types

4 Influencing factors

5 Supporting mechanisms

6 Key stakeholders

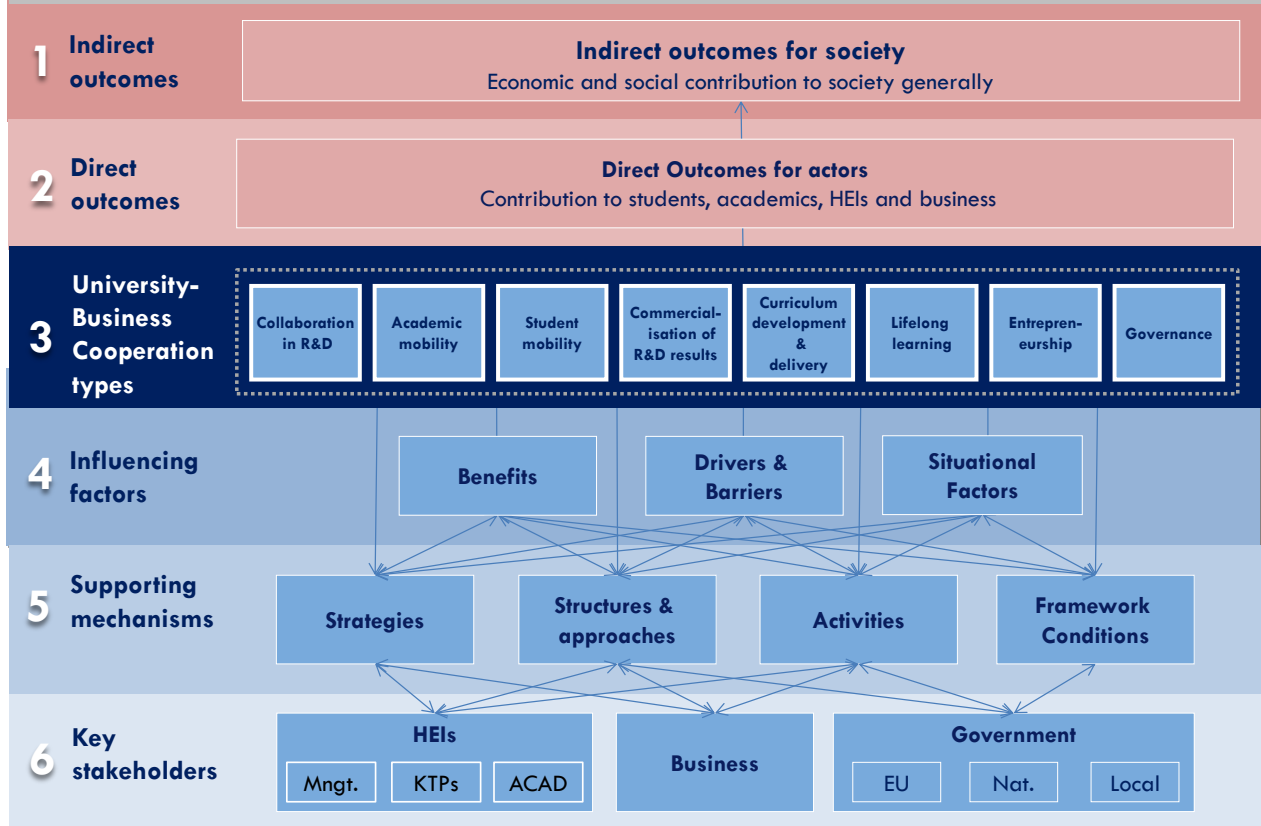
Are you...?

- ...attempting to develop UBC within your organisation?
- ...repetitively thinking about the factors affecting cooperation between university and business as well as their how they relate to each other?
- ...trying to foster open innovation involving universities?
- ...continually confronted with the challenge of creating better relationships between HEIs and business?
- ...a revolutionary trying to match researchers with business partners?

... if you answered 'yes' to any of these questions, you are not alone: this model was developed by people like you for these reasons



UBC ECOSYSTEM MODEL > Detailed



6 Ecosystem Elements (and their key findings)

1. UBC is vital in creating a knowledge society
2. UBC provides direct outcomes for students, HEIs, academics and businesses
3. Those UBC types with more direct, measurable, and promotable benefits are the most developed (e.g. *Collaboration in R&D*, *Mobility of students*)
- 4a. *Situational factors* (e.g. age, faculty) help to explain UBC but there is little that can be implemented from these results
- 4b. Lack of funding and excess of bureaucracy at all levels (HEI, national, European) are the highest *Barriers* to UBC
- 4c. Personal relationships drive UBC. It's a people game!
- 4d. Perceptions of high personal *Benefits* & incentives are motivators of UBC
5. The creation and development of *Supporting mechanisms* (especially those with the highest impact) are critical for UBC
6. In the UBC ecosystem, the multiple actors need to work cooperatively and in a coordinated manner

UBC ECOSYSTEM Layers explained		All aspects are measurable (benchmarking)
1 Indirect Impact	Impact level	How it impacts society
2 Direct outcomes	Outcome level	How it affects stakeholders
3 University-Business Cooperation types	Result level	What occurs
4 Influencing factors	Factor level	What you have to consider
5 Supporting mechanisms	Action level	What you can do
6 Key stakeholders	Stakeholder level	

Please go to <http://ub-cooperation.eu/pdf/UBCECO.pdf> for more information or contact davey@apprimo.com.

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Contact us

Science-to-Business Marketing Research Centre
apprimo UG
UIIN

Todd Davey

davey@apprimo.com

Victoria Galan-Muros

galanmuros@fh-muenster.de